



Virtual Social Capital, Civic Engagement, and Social Responsibility among Generation Z Students

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ABSTRACT

This study aims to examine the relationship between virtual social capital, civic engagement, and social responsibility among the students of generation Z in Islamabad and Rawalpindi, Pakistan. The study is based on Social Capital Theory, and it explores whether civic engagement is a mediator between virtual social capital and social responsibility. The study was based on a quantitative cross sectional survey design, targeting 250 student members of Generation Z in universities and colleges of the twin cities which were sampled using stratified random sampling technique. Partial Least Square – Structural Equation Modeling (PLS-SEM) was used to analyze the data obtained using SPSS 26 and SmartPLS 4. The results showed that virtual social capital was positively and significantly associated with the civic involvement ($\beta = 0.499, p < 0.001$) and social responsibility ($\beta = 0.271, p < 0.001$). Also, civic engagement has a positive and significant impact on social responsibility ($\beta = 0.402, p < 0.001$). In addition, civic engagement partially mediated the relationship between virtual social capital and social responsibility ($\beta = 0.201, p < 0.001$). The findings suggest that online networks with low levels of trust, reciprocity, and social connectedness are associated with lower civic participation and in turn, less sense of responsibility toward society. This study adds to the growing volume of research addressing youth civic engagement and digital social capital in Pakistan and provides practical policy implications for education institutions, policy makers and civil society organizations looking to foster civic engagement among digitally connected youth.

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Introduction

Social media and online communications have revolutionized how youth engage in community life, how they access information, and how they develop relationships. This shift has paved the way for a new understanding of social capital, termed "virtual social capital" (Williams, 2006; Ellison et al., 2007), which is the new form of social capital in the digital era, extending the classic social capital theory (Putnam, 2000; Coleman, 1988). Whereas for Generation Z, a large group of individuals born from the mid-1990s to early 2010s, the Internet is not just an additional medium for communication, but a social and important environment where identity, community and civic consciousness are developed (Seemiller & Grace, 2016; Twenge, 2017).

Young people's civic involvement has been traditionally researched based on offline participatory activities such as voting, volunteerism, and civic organization membership (Carpini, 2000). The research, however, indicates that the online platforms have produced new kinds of civic action, such as online petitions, issue-based group involvement, and information-sharing activities that are not always considered social or political engagement (Boulianne, 2015; Skoric et al., 2016). Social responsibility, a moral commitment to making positive contributions to society, is a normative outcome that can be influenced by these emerging digital civic repertoires (Gil de Zúñiga et al., 2012; Thakur & Shams, 2026; Qadeem et al., 2026; Ali et al., 2025).

In the last ten years, the internet and social media penetration has witnessed a tremendous growth in Pakistan, and in the city of Islamabad and Rawalpindi, young population segments are well connected to the internet and social media. Students belonging in Generation Z of these twin cities are a population that may be particularly dependent on virtual social capital for their civic and social outcomes as they are more likely to use social media and do not have the same amount of civic structures to rely on as their offline counterparts (Ahmad & Hussain, 2017; Anwar & Bashir, 2021). Even so, most research on VSC and civic outcomes is located in the North American and European context (Valenzuela et al., 2009; Steinfield et al., 2008), and the applicability of these dynamics in the context of Pakistani Generation Z populations is relatively under-researched.

To fill this gap this study would focus on the relationship between virtual social capital and social responsibility of the students belonging to generation-Z of Islamabad and Rawalpindi and civic engagement would be modeled as a mediator. The study has three main objectives: (1) to examine the relationship between virtual social capital and civic engagement; (2) to examine the relationship between civic engagement and social responsibility; and (3) to test the mediation of civic engagement in the relationship between virtual social capital and social responsibility. The study thus applies social capital theory to the digital space in an under-researched national context and provides an application-oriented perspective for teaching and policy implications for using digital platforms to facilitate and foster positive civic outcomes with Generation Z.

The way that Generation Z relates with digital platforms is different to the generations before them in ways that are important. Generation Z students have been exposed to smartphones and social media since they were adolescent children, so they typically see the online social world as a non-stop experience to the offline social world, rather than separate realms of interaction (Twenge, 2017; Seemiller & Grace, 2016). Therefore, this generational characteristic has implications for how virtual social capital can be theorized: If this is the case for generation Z, virtual social capital may not necessarily be a replacement for offline social capital, as early internet research suggested (Zhang & Chia, 2006), but an extension or amplification of offline relational resources, with possible implications for the formation and reinforcement of civic dispositions in both physical and virtual settings.

In the Pakistani context specifically, the twin cities of Islamabad and Rawalpindi offer a valuable research setting, because of their density of universities, high rates of smartphone and broadband penetration, and proximity to national political and civic institutions, which could increase exposure of youth to civic and political content found on social media platforms. Meanwhile, there is comparatively little development of traditional civic infrastructure (such as youth wings of civil society groups and structured civic volunteer programs) compared with the size of the local Generation Z student body, suggesting that virtual civic engagement is a key, not secondary, pathway that fosters civic dispositions among local youth (Pew Research Center, 2020; Ahmad & Hussain, 2017).

The rest of this article is structured as follows. The literature review is conducted in the next section, and the hypotheses for the study are developed. This is followed by description of sampling, measurement and

analytical procedures followed. The results of descriptive, reliability, correlation and structural equation modelling are reported in later sections and findings are discussed, limitations are stated, conclusions are drawn, and recommendations are made.

Literature Review

Virtual Social Capital

Online social capital or virtual social capital is a theoretical approach that brings classical social capital theory from Bourdieu (1986), Coleman (1988), and Putnam (2000) into the digitally mediated environment. One of the first validated scales for assessing online social capital was created by Williams (2006), who identified two categories: bonding capital (close, supportive relationships) and bridging capital (loose, diverse and more open to new information and perspectives). I studied the relationships between Facebook use among college students and bridging social capital and found that Facebook use was positively related to bridging social capital, especially among college students who had lower levels of self-esteem or life satisfaction, which indicates that online platforms might have a compensatory or amplifying role in filling in gaps in social capital offline. Steinfield et al. (2008) continued this study over time revealing that the connection between the use of SNS and bridging social capital increased with the passage of time as users became more at ease in online social networks.

Later, Ellison and Vitak (2015) further developed the theoretical perspective of virtual social capital by focusing on the affordance of the platforms — visibility, persistence, editability, and association — on how virtual interactions are transformed into social capital. The civic implications of virtual social capital will likely differ by platform type and use, as this perspective has influenced research on social media and civic involvement and given rise to alternative methods of measuring civic engagement (Gil de Zúñiga et al., 2012).

Civic Engagement in the Digital Era

Civic engagement scholarship has increasingly embraced digitally mediated forms of civic involvement along with offline behaviors. Shah et al. (2001) provided one of the first empirical studies linking pattern of Internet use to civic outcomes, which revealed that Internet use for informational purposes was positively correlated with civic involvement, whereas Internet use for recreation purposes had weaker or null correlations. Boulianne (2015) conducted a meta-analysis of the social media use and political participation literature and reported a small but statistically significant positive association between the two variables for most studies included in the analysis; Skoric et al. (2016) also found a positive meta-analytic association between social media use and civic and political participation, but with weaker effect sizes depending on the specific civic outcome measured.

Bode (2017) highlights the multidimensional nature of digital political interaction and argues that even as incidental participants, algorithmically curated social media feeds can have meaningful impacts on civic awareness and engagement, regardless of users' own political posting or commenting. This is especially relevant to the civic socialization of this generation, as civic/political information is accessed more passively via social media than traditional media sources (Pew Research Center, 2020).

Young people and social responsibility

In the literature, Generation Z has been described as more socially and civically engaged on topics like environmental sustainability, social justice, and inclusivity than previous generations, while at the same time having been heavily networked (Seemiller & Grace, 2016; Twenge, 2017). Social responsibility as a

normative construct, relates to the amount of personal responsibility people feel for their own actions to benefit the wider community or society as a whole. Carpini (2000) suggested that the information environment that younger generations are exposed to is different, as horizontal or peer-to-peer transmission of information now is becoming more important, or even overtaking, traditional civic socialization channels like schools and civic groups.

In the Pakistani context, Ahmad and Hussain (2017) investigated the relationships between social media use and civic engagement in college students, and revealed a positive correlation between engagement with civically-oriented social media content and reported civic behaviors, but their study did not test any mechanisms that might be involved in the relationship between these variables and other measures of social responsibility. The study also supports the use of virtual social capital theory in the local context as Anwar and Bashir (2021) reported that virtual social capital (as measured by the density of online social networks and perceived online trust) was positively related to youth political participation in Pakistan.

Virtual Social Capital

Scholars who have addressed the relationship between virtual social capitals and social responsibility tend to argue that online network resources have much in common with offline social capital: they enable access to civically relevant information, normative cues about social norms and values, and opportunities for collective mobilization (Zhang & Chia, 2006; Valenzuela et al., 2009). Unlike its offline counterpart, however, the effect of virtual social capital on downstream normative outcomes like social responsibility is theorized to be more indirect – mediated by behavior in the civic domain (Gil de Zúñiga et al., 2012). The present study is based on this theoretical reasoning: the mediation model.

The role of civic engagement as a mediating mechanism

A developing line of research suggests civic impact of virtual social capital is not direct, but rather significantly mediated by engaging behavior. The idea that exposure to civically-relevant information drives civic engagement downstream is more strongly correlated than it is with the internalization of civic attitudes directly—with several scholars (Bode 2017, Skoric et al. 2016) arguing that behavioural engagement is a necessary intermediate step between the exposure of civic information and the internalization of civic attitudes, as reflected in civic behaviours. This view aligns with the findings of other offline social capital studies (Astin & Sax, 1998) which have indicated that attitudinal and normative commitments are best generated through active practice, rather than passive resources gathering. When this reasoning is applied to the context of Generation Z, there is a risk that students who have large, or rich, online network connections without turning those connections into active civic engagement (such as online petitioning, involvement in groups on issues of interest, and hybrid online/offline volunteering) may lack the internalized sense of social responsibility that students with more active civic online involvement have.

Conceptual Framework

To this end, this study draws on the literature presented above and suggests a conceptual model in which virtual social capital is the exogenous variable, civic engagement is the mediating variable and social responsibility is the endogenous variable. The model includes both direct and indirect effects of virtual social capital on social responsibility, in accordance with a partial mediation model. The model is based on theory of the structural and relational resources of the digitally mediated social environment of Generation Z being linked to the outcomes of the norm through intervening behavioral mechanisms (Coleman, 1988; Lin, 2001).

Hypothesis Development

Based on the above reviewed literature, the following hypotheses are proposed for this study:

H1: The civic involvement is strongly positively related to virtual social capital.

H2: Social responsibility is greatly influenced by civic engagement.

H3: The virtual social capital has a positive significant impact on social responsibility.

Civic engagement is a significant mediator between the relationship of virtual social capital and social responsibility.

Methodology

Research Design

The study utilized a quantitative, cross-sectional survey research design to explore the influence of virtual social capital on social responsibility of the Generation Z students through the mediation of the concept of civic engagement. The study's explanatory, theory-testing aims and the practicalities of surveying a digitally dispersed Generation Z population were considered in choosing a cross sectional design.

Population and Sampling

The data was gathered from the students of Universities and Colleges in Islamabad and Rawalpindi in the age group of 18-25 years. A total of 250 valid responses were collected by eliminating incomplete or invalid questionnaires through a stratified random sampling method, based on institution and academic year.

Instrumentation

An online and physical survey method was used to send out a structured questionnaire using validated measurement scales. Virtual social capital was regarded as the independent variable, Civic Engagement was the mediator and Social Responsibility the dependent variable. The items were adapted from previous instruments (Williams, 2006; Ellison et al., 2007; Zhang & Chia, 2006) and were rated on a 5-point Likert scale from totally agree to totally disagree. Demographic data obtained included gender, age, academic program, and the typical amount of social media usage per day.

Data Collection Procedure

The data was collected for 5 weeks through a paper-based questionnaire distributed at selected campus locations as well as an online link sent via the university department coordinators and student society networks. All of the respondents had signed informed consent forms before participating and the process was anonymous and voluntary.

Data Analysis Techniques

The data was analyzed with SPSS (version 26) and SmartPLS (version 4). Firstly, demographic profiling and descriptive statistical analysis were carried out. Cronbach's alpha, composite reliability, and average variance extracted (AVE) were used to measure the reliability and validity. The Fornell-Larcker criterion

and the HTMT ratio were used to evaluate the discriminant validity. The strength of the association between variables was determined by Pearson correlation analysis, and the proposed mediation model was tested using Structural Equation Modeling (SEM) with 5,000 resampling in bootstrapping.

Results and Analysis

Demographic Profile of Respondents

Table 1 presents the demographic characteristics of the 250 Generation Z students who participated in the study.

Table 1: Demographic Profile of Respondents

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	124	49.6
	Female	126	50.4
Age	18–20 years	108	43.2
	21–23 years	112	44.8
	24–25 years	30	12.0
City	Islamabad	142	56.8
	Rawalpindi	108	43.2
Daily Social Media Use	Under 2 hours	41	16.4
	2–4 hours	118	47.2
	Over 4 hours	91	36.4

Descriptive Statistics

Table 2 reports the mean, standard deviation, skewness, and kurtosis for the three study constructs.

Table 2: Descriptive Statistics

Construct	Mean	SD	Skewness	Kurtosis
Virtual Social Capital	3.69	0.65	-0.27	0.11
Civic Engagement	3.52	0.71	-0.18	-0.21
Social Responsibility	3.77	0.60	-0.36	0.22

Reliability and Validity

As shown in Table 3, all constructs exceeded recommended thresholds of 0.70 for Cronbach's alpha and composite reliability, and 0.50 for AVE.

Table 3: Reliability and Validity

Construct	Items	Cronbach's Alpha	Composite Reliability (CR)	AVE
Virtual Social Capital	7	0.85	0.88	0.59
Civic Engagement	6	0.82	0.86	0.57
Social Responsibility	6	0.84	0.87	0.58

Measurement Model: Item Loadings

All standardized outer loadings, presented in Table 4, exceeded the recommended threshold of 0.60, supporting the adequacy of the measurement model.

Table 4: Item Loadings

Construct	Item	Loading
Virtual Social Capital	VSC1	0.736
Virtual Social Capital	VSC2	0.759
Virtual Social Capital	VSC3	0.802
Virtual Social Capital	VSC4	0.781
Civic Engagement	CE1	0.708
Civic Engagement	CE2	0.754
Civic Engagement	CE3	0.776
Social Responsibility	SR1	0.749
Social Responsibility	SR2	0.793
Social Responsibility	SR3	0.765

Discriminant Validity

To check discriminant validity, the Fornell-Larcker criterion (Table 5) was used, as well as the HTMT ratio (Table 6). The square root of AVE for each construct was greater than the correlations with other constructs, and all of the HTMT values were below the conservative value of 0.85, which together indicated discriminant validity.

Table 5: Discriminant Validity

Construct	1. VSC	2. CE	3. SR
1. Virtual Social Capital	0.768		
2. Civic Engagement	0.498	0.755	
3. Social Responsibility	0.471	0.532	0.761

Table 6: HTMT ratio

Construct Pair	HTMT Ratio
Virtual Social Capital ↔ Civic Engagement	0.598
Civic Engagement ↔ Social Responsibility	0.631
Virtual Social Capital ↔ Social Responsibility	0.562

Correlation Analysis

To support the hypothesis of the proposed relationships, bivariate relationships between the three constructs were examined using Pearson correlation analysis and the values obtained showed that all the relationships were statistically significant at the $p < .01$ level and positive, as in the Fornell-Larcker correlation values reported in Table 5.

Model Fit and Common Method Bias

Model fit was evaluated by SRMR with a value of 0.058 which was less than the recommended SRMR of 0.08. Harman's single factor test showed that only one factor explained 31.7% of the total variance which was below the 50% level, indicating that there was not significant amount of common method bias.

Structural Model and Hypothesis Testing

PLS-SEM (with bootstrapping (5,000 resamples)) was used to estimate the structural model. Virtual social capital and civic engagement accounted for 38.6% of the variance in social responsibility ($R^2 = .386$) while

virtual social capital accounted for 24.9% of the variance in civic engagement ($R^2 = .249$). Path coefficients, t-values and significance levels are given in Table 7.

Table 7: Structural Model and Hypothesis Testing

Hypothesis	Path	β	t-value	p-value	Decision
H1	VSC $\rightarrow$ CE	0.499	8.674	0.000	Supported
H2	CE $\rightarrow$ SR	0.402	6.815	0.000	Supported
H3	VSC $\rightarrow$ SR	0.271	4.203	0.000	Supported
H4	VSC $\rightarrow$ CE $\rightarrow$ SR (indirect)	0.201	4.887	0.000	Supported

All hypothesized paths were significant, as can be seen in Table 7. H1 was supported by the virtual social capital which strongly predicted civic engagement ($\beta = .499$, $p < .001$). To support H2, civic engagement was highly associated with social responsibility ($\beta = .402$, $p < .001$). With regard to H3, virtual social capital had a significant direct effect on social responsibility ($\beta = .271$, $p < .001$). Both the bootstrapped indirect effect ($\beta = .201$, $t = 4.887$, $p < .001$) and the direct effect were significant, therefore, civic engagement was found to partially mediate the relationship between virtual social capital and social responsibility, supporting H4.

Discussion

The results lend credence to the theoretical hypothesis that virtual social capital, just as offline social capital, is a valuable asset which helps influence the civic and normative qualities among youth (Williams, 2006; Ellison et al., 2007). The strong impact of virtual social capital on civic engagement is consistent with previous studies by Valenzuela et al. (2009) and Gil de Zúñiga et al., (2012); as such, the authors' proposition that online network ties can be linked to actual civic participation, instead of just replacing in-person social capital, is strengthened by these findings. The mixed mediation results also align with Bode (2017), who suggested that the digital civic engagement might serve as an important behavioural mechanism between online social resources and overall civic orientations.

The study is especially significant within the context of Pakistani Generation Z as it is the first attempt to formally test a mediated structural model rather than just bivariate association as done by Ahmad and Hussain (2017) and Anwar and Bashir (2021). This finding implies that for the students of Generation Z in the city of Islamabad and Rawalpindi, social media and digital networking platforms are a pathologically significant avenue for civic socialization making up for the relatively small civic infrastructure they have experienced in offline settings.

The relatively greater impact of civic engagement (as opposed to network possession alone) on social responsibility ($\beta = .402$) further strengthens the theoretical rationale that civic engagement is a more direct cause of internalized civic norms rather than network possession. In a world where many universities and youth-serving institutions are increasingly operating online, this means having strategies that are only about growing the number of contacts students have online will not translate directly into higher civic impacts without intentional and structured efforts to turn those contacts into either online or blended (online and in-person) opportunities for engagement.

Limitations

There are a number of limitations to this study. The cross-sectional design precludes causal inference and the sample was limited to Islamabad and Rawalpindi, which may not be representative of the Generational Z populations in other cities in Pakistan that have varying rates of digital access. The social desirability bias

might also be present in the self-reported indicators of virtual social capital and civic involvement. The findings would be bolstered with future studies using platform-level behavioral data, as opposed to relying on self-report alone.

Conclusion and Recommendations

The present study aimed to explore the association between virtual social capital, civic involvement and social responsibility among the students from generation Z of Islamabad and Rawalpindi with the help of structural equation modeling method. The findings suggest that virtual social capital has proved to have a significant predictive relationship with both civic engagement and social responsibility and that the relationship between civic engagement and social responsibility is partially mediated by civic engagement, highlighting the increasing civic relevance of digital social networks for Pakistan's youngest university-going population.

Theoretical Implications

This study builds on the social capital theory by expanding it to the online world and applying it in a South Asian Generation Z context, which lends empirical support for the applicability of the western-based virtual social capital frameworks developed by Ellison et al., (2007), Steinfield et al., (2008). The study also provides a more theoretically sophisticated description of the process of translating online network resources into the internalization of social responsibility by modeling civic engagement as an "intermediate" rather than "end" variable.

Practical Implications and Recommendations

From these results, a number of recommendations are provided. First, universities and student affairs offices should take advantage of official social media and other digital platforms to help promote civic engagement opportunities, as Generation Z is incredibly dependent on digital information channels. Second, it would be important to develop digitally integrated engagement initiatives for civil society organizations and youth development programs that complement and rather than supplant students' online network ties. Third, while increasing students' virtual networks, programming should also seek to convert online network resources into "civic engagement" opportunities and increase the downstream effects on social responsibility, partially mediated by the online network. Fourth, as demonstrated above, digital media has contributed to civic socialization, civic education and digital citizenship education should be integrated in the university's curricula to enable students to critically engage with content relevant to civic life that can be found online.

Future Research Directions

Further studies should use a longitudinal design to determine the direction of the relationships found in this study, and a larger sample of the proposed model be applied to other cities in Pakistan to determine its generalizability with Generation Z populations. Future research could also explore disaggregation by platform type, as different platforms may enable different types and levels of civic engagement (Ellison & Vitak, 2015), and could include behavioral indicators of online civic involvement in addition to self-reported ones.

Declarations

Ethical approval: Not applicable

Consent to participate: Not applicable

Consent to publish: All authors have given consent to publish.

Competing interest: The authors have no competing interests to declare.

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